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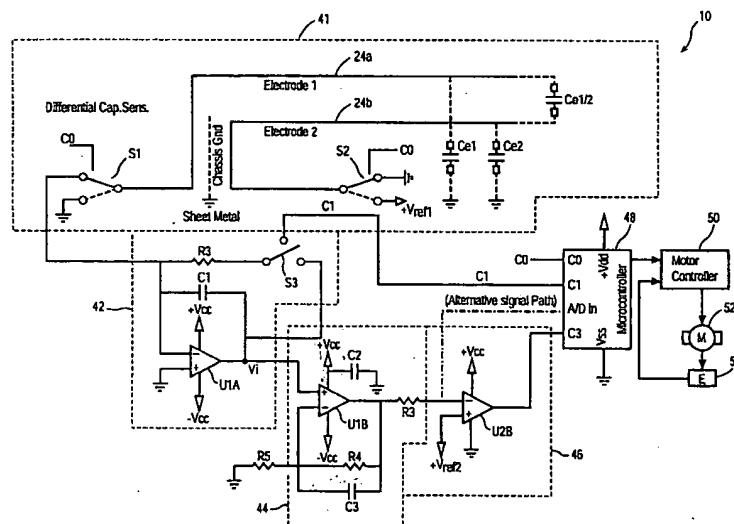
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(54) Title: DIFFERENTIAL ANTI-PINCH CAPACITIVE SENSOR



(57) Abstract: A proximity sensor for sensing an object in the path of or proximate to a closure panel such as a vehicle window. First and second electrodes encased in a non-conductive casing are mounted on the metallic structure near the closing edge of the aperture. The two electrodes define a capacitance CE1/2 therebetween, and parasitic capacitances CE1 & CE2 between the first electrode and chassis ground and the second electrode and chassis ground, respectively. A controller cyclically connects (1) the second electrode to a voltage reference source (Vref.) and the first electrode to chassis ground and (2) the second electrode to chassis ground and the first electrode to the reference capacitor, thereby periodically charging the capacitance CE1/2 and transferring the charge stored thereon to the reference capacitor whilst short-circuiting the parasitic capacitances. The charge on the reference capacitor, the time period required to charge the reference capacitor to a specified voltage, or a calculated value for CE1/2 are then compared against a reference value in order to derive an obstruction signal.

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